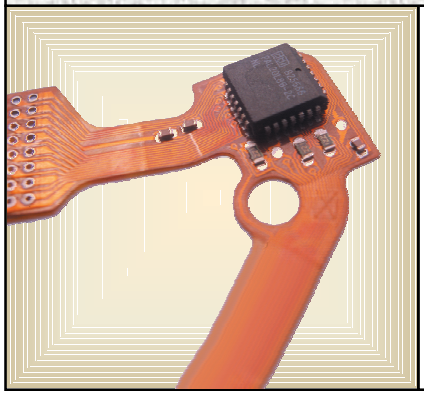
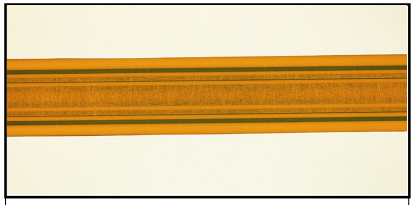


FLEXIBLE LAMINATE

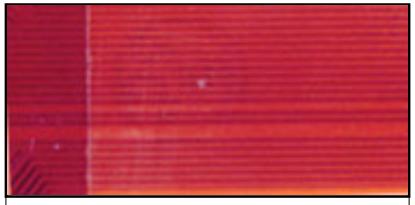
The thin films used in flexible circuitry offer significant weight and space savings over traditional rigid designs, and allow the development of printed boards that can be bent and folded in three-dimensional (3-D) configurations. Flexible boards may be single, double, or multi-layer; may contain through-hole, surface mount, or mixed technology; and, can be constructed wholly of flex or a combination of both flex and rigid (see rigid-flex, section 5.04).

See Section 5.01 "Printed Wiring Board, General Requirements", for common accept / reject criteria.



PREFERRED
GENERAL

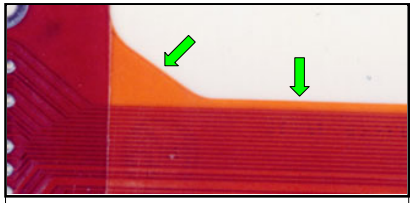
Flexible circuit is clean, smooth, of uniform thickness, and free of damage. Solderable surfaces are clean and bright. Markings are legible and properly oriented.



PREFERRED
COVERFILM

The coverfilm is smooth, clean, and of uniform thickness. There is no evidence of bubbles, creases, delamination, entrapped particles, gouges, tears, or ripples. Alignment and registration are correct.

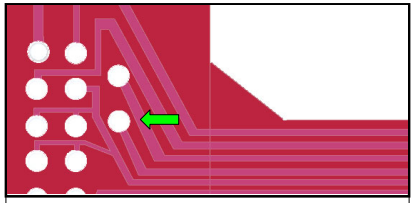
Best Workmanship Practice



PREFERRED
TRIMMED EDGE

The trimmed edge shall be free of burrs, nicks, delamination, or tears. Minimum edge to conductor spacing shall be maintained.

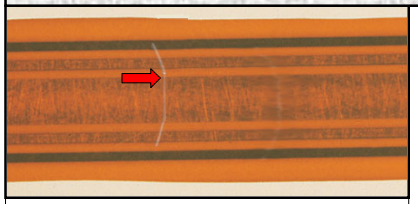
Best Workmanship Practice



ACCEPTABLE
COVERFILM REGISTRATION

The coverfilm is aligned and registered within engineering specification. All annular ring cutouts are centered, and there is no evidence of unwanted material on land areas.

Best Workmanship Practice



UNACCEPTABLE
FOREIGN MATERIAL IN COVERCOAT

Foreign material under the covercoat represents a contamination and reliability concern.

Best Workmanship Practice

UNACCEPTABLE
PHYSICAL DAMAGE

Cuts, nicks, gouges, tears, or other physical damage that result in exposed circuitry or reduce electrical separation below minimum requirements are unacceptable.

Best Workmanship Practice

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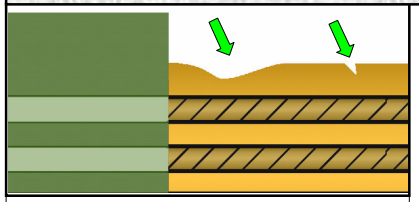
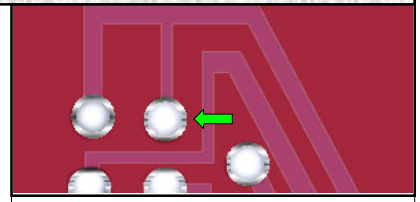


**ACCEPTABLE
EDGE NICKS**

Nicks along the edges of the flexible printed wiring, cutouts, and unsupported holes are acceptable, provided minimum edge to conductor spacing is maintained and damage is within agreed-upon limits.

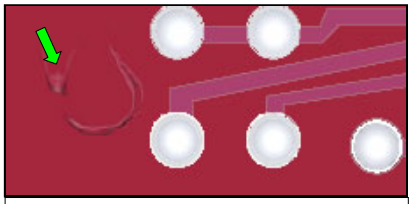
Best Workmanship Practice



**ACCEPTABLE
PLATED SURFACES**

Plating is uniform, smooth, and shiny. Holes are smooth and clean. No evidence of solder wicking / plating migration.

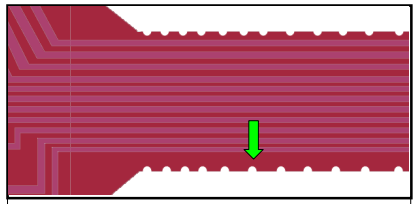
Best Workmanship Practice



**ACCEPTABLE
SURFACE ROUGHNESS / SCUFFING**

Minor roughness or scuffing of the laminate surface is acceptable, provided the damage does not reduce reliability or interfere with the design of service / operability.

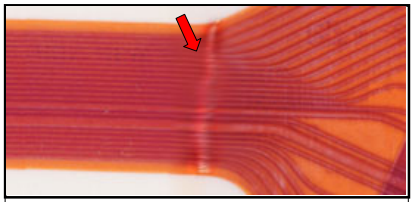
Best Workmanship Practice



**ACCEPTABLE
TIE-IN TAB TEARS**

Minor nicks and tears that result from the use of tie-in tab design are acceptable, provided the damage does not reduce edge to conductor spacing below minimum requirements, or exceed the damage requirement agreement.

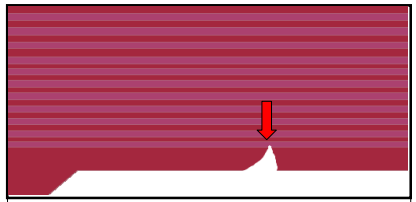
Best Workmanship Practice



**UNACCEPTABLE
CREASES**

Creases reduce the current carrying capability and reliability of the printed conductors and the bond integrity of the laminate. Flexible circuits shall exhibit proper bend radius and strain relief.

Best Workmanship Practice



**UNACCEPTABLE
EDGE NICKS**

Nicks along the edges of the flexible printed wiring, cutouts, and unsupported holes which reduce minimum edge to conductor spacing below minimum requirements, or expose conductive surfaces, are unacceptable.

Best Workmanship Practice